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The role of initial neck dissection for patients with node-positive oropharyngeal squamous cell carcinomas

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SUMMARY

Background: The current study sought to assess the role of initial neck dissection (ND) for patients with node-positive oropharyngeal squamous cell carcinomas (OPSCC).

Methods: The data for 202 patients with previously untreated node-positive OPSCC were gathered from 12 institutions belonging to the Head and Neck Cancer Study Group in the Japan Clinical Oncology Group. These patients were categorized into two groups, consisting of the initial ND group and the wait-and-see group, according to treatment policy.

Results: Regional recurrence was observed in 17 of 93 patients undergoing initial ND, whereas, recurrent or persistent diseases were observed in 40 of 109 patients who did not undergo initial ND. The 4-year overall survival rates (OS) for the wait-and-see group and initial ND groups were 74.0% and 78.7%, respectively, and the 4-year regional control rates (RC) for each group were 77.6% and 84.9%. There were no significant differences in either OS or RC ($p = 0.3440$ and $p = 0.2382$, respectively). However, for patients with N3 disease, the 4-year OS of the initial ND group (100%) was favorable. For patients with N2a disease, the 4-year RC of the initial ND group was higher than that of the wait-and-see group statistically (100% vs 62.5%, $p = 0.0156$).

Conclusions: The role of initial ND was limited in patients with node-positive OPSCC. The treatment strategy not involving initial ND is considered feasible and acceptable when nodal evaluation after definitive radiotherapy or chemoradiotherapy is applied adequately. However, it is possible that initial ND improves outcomes in patients with resectable large-volume nodal disease.

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Introduction

Head and neck cancers mostly arise from epithelial squamous cells in the mucosa in the upper aerodigestive tract with more than 500,000 new cases diagnosed worldwide each year [1]. The

number of patients with oropharyngeal squamous cell carcinomas (OPSCC), in particular, has been increasing as infection with human papilloma virus (HPV) becomes more widespread.

The presence of regional metastasis is well known to be the most important factor affecting the prognoses for patients with head and neck cancer [2]. Neck dissection (ND) is most likely to be performed when primary disease is treated surgically for patients with regional metastasis. Traditionally, most patients with

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N2 or N3 disease have generally undergone initial ND consisting of upfront ND followed by concomitant chemoradiotherapy (CRT) or radiotherapy (RT), and planned ND regardless of nodal response [3,4]. However, in recent years, some investigators have advocated observation of the neck in patients initially diagnosed with N2–N3 disease, provided a complete response (CR) of regional disease is achieved after CRT or RT [5–7].

To date, there have been few multi-institutional reports evaluating the differences in outcome between the patients undergoing initial ND (upfront ND, planned ND, or simultaneous ND with primary resection) and those who did not undergo initial ND.

We, therefore, analyzed the overall survival rates and the regional control rates of patients with initial ND and those without initial ND, and evaluated the role of initial ND in patients with node-positive OPSCC.

Methods

Patients

The data for 507 patients with previously untreated OPSCC between April 2005 and March 2007 were gathered from 12 institutions belonging to the Head and Neck Cancer Study Group in the Japan Clinical Oncology Group (JCOG). The therapeutic strategy varied widely among the institutions. This study was a retrospective analysis, so the criteria for the selection of therapeutic modality were decided on the basis of the institutional policy or patient preference. The 160 patients with N0 and 47 patients treated with induction chemotherapy were excluded. A further 37 patients not treated with curative intent were also excluded. In addition, 61 patients, who were observed for less than 24 months without regional recurrence, were excluded. The remaining 202 patients were eligible for this study.

In 109 patients, CRT or RT was performed without upfront or planned ND. If residual neck disease was observed after initial therapy, salvage ND was indicated. ND was not applied to patients with a CR of neck disease. This group, consisting of these 109 patients, was defined as the “wait-and-see” group. In the remaining 93 patients, ND was performed as the initial treatment. ND was performed simultaneously when primary disease was treated surgically in 80 of the 93 patients, and planned ND was performed regardless of nodal response after RT or CRT in 4 patients. Upfront ND followed by RT or CRT was performed in 9 patients. This group, consisting of these 93 patients, was defined as the “initial ND” group. The characteristics of each group are shown in Table 1. There were no significant differences in any factor between the wait-and-see group and the initial ND group.

Time of assessment and evaluation method of regional diseases after initial treatment depended on the retrospective policy at each institution. This multi-institutional joint research has been representatively approved by the appropriate ethical committees of the National Hospital Organization Tokyo Medical Center, Tokyo, Japan, and written informed consent was obtained from all patients before entry into the study.

Statistics

Associations between patient characteristics were tested using the chi-square test. The Kaplan–Meier method was applied for survival and control rates using JMP Pro 10.0.2 statistical software (SAS Institute, Cary, NC). The time of interest was the duration from the start of treatment to death or failure. Regional failure was defined as either radiographically suspicious or biopsy-proven recurrent nodal diseases that were not under control.

Table 1
Characteristics of patients in the wait-and-see and initial neck dissection groups.

Variable	No. of Patients (%)		p Value
	Wait-and-see group (n = 109)	Initial neck dissection group (n = 93)	
<i>Age, years</i>			
<62	54 (49.5)	49 (52.7)	0.655641
>62	55 (50.5)	44 (47.3)	
<i>Gender</i>			
Male	93 (85.3)	77 (82.8)	0.624162
Female	16 (14.7)	16 (17.2)	
<i>Subsite</i>			
Lateral wall	80 (73.4)	56 (60.2)	
Anterior wall	23 (21.1)	31 (33.3)	
Posterior wall	4 (3.7)	0 (0)	
Upper wall	2 (1.8)	6 (6.5)	
<i>T classification</i>			
1–2	71 (65.1)	54 (58.1)	0.3022279
3–4	38 (34.9)	39 (41.9)	
<i>N classification</i>			
1	16 (14.7)	17 (18.3)	
2a	16 (14.7)	13 (14.0)	
2b	43 (39.4)	38 (40.9)	
2c	25 (22.9)	19 (20.4)	
3	9 (8.3)	6 (6.4)	
<i>Smoking behavior</i>			
Present	86 (78.9)	76 (81.7)	0.6159961
Absent	23 (21.1)	17 (18.3)	
<i>Daily alcohol consumption</i>			
Present	84 (77.1)	69 (74.2)	0.6351948
Absent	25 (22.9)	24 (25.8)	
<i>Follow-up of survivors, years</i>			
Median (range)	4.6 (0.9–5.7)	4.5 (2.3–5.7)	

Results

Details of initial treatment

The details of treatments in the wait-and-see group are shown in Table 2. In this group, RT alone, targeting both primary and regional disease, was performed in 56 patients.

CRT was performed in 53 patients. The irradiation dose for patients in this group ranged from 22 to 77 Gy, with a median dose of 70 Gy. In the wait-and-see group, 93 patients (85.3%) achieved a CR for the primary tumor. Persistent primary diseases were observed in the remaining 16 patients. Among these 16 patients, 6 patients underwent salvage surgery for primary disease and 5 patients survived. The remaining 10 patients died of primary diseases without salvage surgery.

The details of treatments in the initial ND group are shown in Table 3. The primary disease in 80 of the patients was treated by surgery. ND was performed simultaneously for these patients. In 35 of the 80 patients, post-operative RT was also performed. In this group, RT alone was performed for 8 patients and CRT was performed for 5 patients. These 13 patients underwent planned ND or upfront ND as the initial treatment. All 13 patients undergoing RT or CRT achieved a CR for primary disease after the completion of the initial treatment.

Regional disease and survival outcomes

Figs. 1 and 2 indicate the treatment outcomes of the initial ND group and the wait-and-see group, respectively.

In 17 of 93 patients in the initial ND group (18.3%), regional recurrence was observed at a median of 8.2 months after the completion of initial treatment (range, 2.5–15.2 months) (Fig. 1). In 6 of these 17 patients, salvage ND was performed at a median of

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